REMARKS/ARGUMENTS

Claim rejections under 35 U.S.C. 112

Applicants have amended claims 7-8, 20-21, 33-34 to provide proper antecedent basis by amending 'the determined storage location' to 'the determined storage location address'. Applicants submit that the Examiner has made a typographical error in indicating that antecedent basis was lacking in claims 34-35 instead of indicating that antecedent basis was lacking in claims 33-34.

Mistyped commas have also been corrected in claims 9 and 35.

Claim rejections under 35 U.S.C. 103

The Examiner has rejected pending claims 1-45. The Examiner rejected claims 1-5, 9-18, 22-31, 35-45 under 35 U.S.C. 103(a) as being unpatentable over Xu (US 6,324,581) in view of Nahum (US 6,898,670). Claims 6-8, 19-21, and 32-34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Nahum, and in view of Porcar ("File Migration in Distributed Systems" California Univ., Berkeley, Lawrence, Berkeley Lab, copyright 1982). Applicants traverse the rejections of claims 1-45.

Independent claims 1, 14, and 27

Independent claims 1, 14, 27 are for controlling and providing access to ~~a~~ files maintained at remote storage locations to a source code management system client over a network, and require:

receiving a request, at a server, for checking-out a file corresponding to a filename, from the source code management system client over the network;

determining from metadata, by the server, a remote storage location address associated with the filename where the requested file is located, wherein the metadata includes mappings that indicate remote storage location addresses where the files are stored and indications of the number of accesses of the files by a plurality of source code management system clients, wherein the metadata is stored more proximate to the server than to the source code management system client, wherein the remote storage location address is based on a history of request patterns from a the plurality of source code management system clients, and wherein the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients;

sending, by the server, the remote storage location address to the source code management system client, wherein the remote storage location address where the requested file is located is more proximate to the source code management system client than to the server; and

updating, by the server, the metadata to indicate that the requested file is checked-out and locked.

The Examiner has rejected claims 11, 14, and 27 under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Nahum.

Applicants have amended claims 11, 14, 27 to include the new requirements that the metadata includes mappings that indicate remote storage location addresses where the files are stored and indications of the number of accesses of the files by a plurality of source code management system clients, and that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients. The added new requirements may be found in at least FIG. 9 and pages 5-13 of the specification, and does not add any new matter.

Nowhere does the cited Xu (col. 10, lines 12-25) or the cited Nahum (fig. 17; col. 9: lines 31-35; col. 19, line 52 – col. 20, line 18; col. 20: lines 14-18) teach or suggest the claim requirements that the metadata includes indications of the number of accesses of the files by a

plurality of source code management system clients, and that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients in combination with the other claim requirements.

The metadata discussed in the cited Xu indicates the storage location where a file is stored. The metadata discussed in the cited Nahum is defined by the cited Nahum (Col. 1, lines 29-30 included under "Definitions") as "the data pertaining to the mapping of the virtual volumes." Therefore, neither the cited Xu nor the cited Nahum teach or suggest the claim requirement that the metadata includes indications of the number of accesses of the files by a plurality of source code management system clients.

In the office action (page 4) the Examiner has interpreted the claim requirement of the history of request patterns as "the location the file has been during previous requests" and has mentioned that the history of request patterns is disclosed by col. 10, lines 14-17 of the cited Xu. Col. 10, lines 14-17 of the cited Xu discusses that before reading or writing to the file system, a client first issues a request for metadata to the data mover, and the data mover responds by placing an appropriate lock on the file to be accessed, and returning metadata including pointer to where the data to be accessed is stored in the file system. The amended claims require that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients and this claim requirement is nowhere taught or suggested by either the cited Xu or the cited Nahum.

For the above reasons, claims 1, 14, and 27 are patentable over the cited art.

Independent Claims 10, 23, 36

Independent claims 10, 23, 36 are for accessing a file in a source code management system, comprising:

sending, from a source code management system client, a first request for checking-out the file to a server;

receiving, at the source code management system client, a storage location address containing the file in response to the first request, wherein the storage location address containing the file is located more proximate to the source code management system client than to the server, wherein metadata corresponding to the file is kept more proximate to the server than to the source code management system client, wherein the storage location has been determined from the metadata by the server based on a history of request patterns from a plurality of source code management system clients, wherein the metadata includes mappings that indicate storage location addresses where files are stored and indications of the number of accesses of the files by the plurality of source code management system clients, and wherein the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients;

sending, from the source code management system client, a second request to the storage location address; and

receiving, at the source code management system client, an access to the file from the storage location address, wherein the server updates the metadata to indicate that the file is checked-out and locked after providing the access.

The Examiner has rejected claims 10, 23, and 36 under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Nahum.

Applicants have amended claims 10, 23, 36 to include the new requirements that the metadata includes mappings that indicate storage location addresses where files are stored and indications of the number of accesses of the files by the plurality of source code management system clients and that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients. The added new requirements may be found in at least FIG. 9 and pages 5-13 of the specification, and does not add any new matter.

Nowhere does the cited Xu (col. 10, lines 12-22) or the cited Nahum (fig. 17; col. 9: lines 31-35; col. 19, line 52 – col. 20, line 18; col. 20: lines 14-18) teach or suggest the claim requirements that the metadata includes mappings that indicate storage location addresses where files are stored and indications of the number of accesses of the files by the plurality of source code management system clients and that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients in combination with the other claim requirements.

The metadata discussed in the cited Xu indicates the storage location where a file is stored. The metadata discussed in the cited Nahum is defined by the cited Nahum (Col. 1, lines 29-30 included under "Definitions") as "the data pertaining to the mapping of the virtual volumes." Therefore, neither the cited Xu nor the cited Nahum teach or suggest the claim requirement that the metadata includes indications of the number of accesses of the files by a plurality of source code management system clients.

In the office action (page 10) the Examiner has mentioned that the claim requirement of the history of request patterns is disclosed by col. 10, lines 14-19 of the cited Xu.
Col. 10, lines 14-19 of the cited Xu discusses that before reading or writing to the file system, a client first issues a request for metadata to the data mover, and the data mover responds by placing an appropriate lock on the file to be accessed, and returning metadata including pointer to where the data to be accessed is stored in the file system, and where the client uses the metadata to formulate a read or write request sent over the bypass data path to the file system. The amended claims require that the history of request patterns includes the indications of the number of accesses of the files by the plurality of source code management system clients and this requirement is nowhere taught or suggested by either the cited Xu or the cited Nahum.

For the above reasons, claims 10, 23, and 36 are patentable over the cited art.

Dependent claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-45

The Examiner has also rejected pending claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-45 that depend on the pending independent claims 1, 14, 27, 10, 23, or 36. Applicants submit that these claims are patentable over the cited art because they depend from claims 1, 14, 27, 10, 23, or 36 which are patentable over the cited art for the reason discussed above, and because the combination of the limitations in the dependent claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-45 and the base and intervening claims from which they depend provide further grounds of distinction over the cited art.

Claims 4, 17, 30

Claims 4, 17, 20 depend on claims 3, 16, 29 respectively, further comprising:

locking the requested file;

returning a response code to the source code management system client indicating that file check-out is successful.

The Examiner has rejected claims 4, 17, 30 under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Nahum.

Nowhere does the Examiner cited Xu (col. 9, lines 59 - col. 10, lines 25) [or the cited Nahum] teach or suggest the claim requirements of returning a response code to the source code management system client indicating that file check-out is successful.

The cited Xu discusses that the data mover responds by placing an appropriate lock on the file to be accessed and returning metadata to the client. Should the Examiner maintain the rejection the Examiner is requested to indicated where the cited Xu (or the cited Nahum) teach or suggest the claim requirements returning a response code to the source code management system client indicating that file check-out is successful .

For the above reasons claims 4, 17, 30 are patentable over the cited art.

Claims 5, 18, 31

Claims 5, 18, 31 depend on claims 4, 17, 30 respectively, wherein the request is a first request, wherein the file for checking-out is a first file, wherein the response code is a first response code, and wherein a second request is for checking-in a second file, the method further comprising:

updating the metadata indicating the requested second file is unlocked; and

returning a second response code indicating that the check-in of the second file is successful.

Nowhere does the Examiner cited Xu (col. 10, lines 17-25) [or the cited Nahum] teach or suggest the following claim requirements:

(a) updating the metadata indicating the requested second file is unlocked;

(b) returning a second response code indicating that the check-in of the second file is successful.

The Examiner cited col. 10, lines 17-25 of the cited Xu discusses placing appropriated locks on the file to be accessed, and returning metadata including pointers to where the data to be accessed is stored in the file system. The client may write the new file attributes to the data mover after the data is written to the file system.

Should the Examiner maintain the rejection of the claims, the Examiner is requested to indicated where the cited Xu (or the cited Nahum) teach or suggest the claim requirements of:

(a) updating the metadata indicating the requested second file is unlocked;

(b) returning a second response code indicating that the check-in of the second file is successful.

For the above reasons claims 5, 18, 31 are patentable over the cited art.

Claims 13, 26, 39

Claims 13, 26, 39 depend on claim 10, 23, 36 respectively and further require:

receiving a first response code from the server in response to the first request;

receiving a second response code from the storage location in response to the second request; and

receiving a third response code from the server in response to the third request.

The cited Xu (col. 10, lines 14-19) discusses locking, returning metadata, writing new file attributes, etc. Nowhere does the cited Xu teach or suggest the claim requirement of receiving a first response code from the server in response to the first request; receiving a second response code from the storage location in response to the second request; and receiving a third response code from the server in response to the third request.

Should the Examiner maintain the rejection of the claims the Examiner is requested to indicate which element of the cited Xu corresponds to:

(a) a first response code

(b) a first request

(c) a second response code

(d) a second request

(e) a third response code

(f) a third request.

For the above reasons claims 13, 26, 39 are patentable over the cited art.

Amended claims 40-45

Amended claims 40-45 included the newly added requirements that wherein the indications of the number of accesses of the files by the plurality of source code management system clients included in the metadata indicates that the first source code management system client has accessed the file a greater number of times than the second source code management system client. The newly added requirements may be found in at least FIGs. 9 and 10, and pages 12-13 of the specification.

Nowhere does the cited Xu or the cited Nahum teach or suggest the newly added claim requirements that the indications of the number of accesses of the files by the plurality of source code management system clients included in the metadata indicates that the first source code management system client has accessed the file a greater number of times than the second source code management system client.

For the above reasons claims 40-45 are patentable over the cited art.

Claims 6, 19, 32

Claims 6, 19, 32 depend on claims 1, 14, 27 respectively, wherein a table maintains statistics for file usage, and further comprises:

processing a pattern of requests for the requested file received from source code management system clients at different geographical locations;

determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file;

storing the requested file corresponding to the filename at the determined plurality of remote storage locations; and

saving a correspondence between the requested file and storage location addresses corresponding to the determined plurality of remote storage locations in the metadata.

The Examiner has rejected claims 6, 19, 32 as being unpatentable under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Nahum and in view of Porcar. Applicants traverse.

The claims require:

(a) a table that maintains statistics for file usage,

(b) determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file;

(c) storing the requested file corresponding to the filename at the determined plurality of remote storage locations;

The cited Porcar discusses file migration in distributed computer systems that maintain multiple copies of files. Files are moved around in a distributed computer system based on certain policies in response to the referencing of files, such as updates of files.
The Examiner has mentioned (Office action page 14) that the migration policies discussed in section 5.2 of the cited Porcar discloses the claim requirements of a table that maintains statistics for file usage and determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file. Applicants submit that nowhere does the cited Porcar teach or suggest the claim requirement of a table. Since the cited Porcar does not suggest the claim requirement of a table, the cited Porcar does not teach or suggest the claim requirements of a table that maintains statistics for file usage, and determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file.

Furthermore, the claims require determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file and storing the requested file corresponding to the filename at the determined plurality of remote storage locations. The cited Porcar teaches away from the claim requirements because the cited Porcar maintains the master copy as local to the user updating the file (cited Porcar: page 121, line 19 included the third paragraph of page 121 that starts with "As we described in section 5.1.1....."). In page 117 it is indicated in the cited Porcar in 5.1.1. that "for each file, there is at least one copy, the master copy, in the system at all times.....In our implementation, the master copy is never deleted". As described above the master copy is local to the user updating the file, i.e., the master copy is local to the remote computer. Therefore, the master copy and the distribution of the master copy teaches away from the claim requirements of determining from the table a plurality of remote storage locations based on the pattern of requests for the requested file and storing the requested file corresponding to the filename at the determined plurality of remote storage locations.

Additionally, the motivation of the cited Porcar of reducing the traffic an order of magnitude as compared to single copy policies (Porcar 5.4 conclusions) used by the Examiner to

modify the system of the cited Xu with the teachings of the cited Porcar is improper. The reduction of traffic in the cited Porcar is caused by the removal of "copies that exceed a retention cost based on storage costs and update traffic costs" (cited Porcar, page 134). Therefore, the cited Porcar is motivating reduction of traffic by removing copies of files. If copies of files are removed in the system of the cited Xu then when requests are made to the data movers of the cited Xu the requests from the client cannot not be satisfied and the system of the cited Xu would be inoperable. Therefore, modifying the system of the cited Xu according to the motivation provided by the cited Porcar is improper as it would lead to an inoperable system in the cited Xu.

For the above reasons, claims 6, 19, and 32 are patentable over the cited art.

Claims 7, 20, 33

Claims 7, 20, 33 depend on claims 6, 19, 32 respectively, wherein , wherein the determined remote storage location address is at a geographical location that is more proximate to the source code management system client having more requests for the requested file than other source code management system clients.

The cited Porcar (section 5.1.6 distributing the updates) used in rejecting the claim requirements discusses that when a master copy has been updated, the remaining copies are brought up to date by transmitting all updates in a batch. Reads to local copies are made inexpensive. Files are synchronized. A weighted voting mechanism and file version numbers are used to decide what are the files that contain current information. Nowhere does the cited Porcar teach or suggest the claim requirement that the one determined remote storage location is at a geographical location that is more proximate to the source code management system client having more requests for the requested file than other source code management system clients.

Additionally, there is no motivation provided by the Examiner to combine the teachings or suggestions of the cited Porcar, the cited Xu and the cited Nahum to arrive at the claim requirements of claims 7, 20, 33.

For the above reasons claims 7, 20, 33 are patentable over the cited art.

Claims 8, 21, 34

Claims 8, 20, 33 depend on claims 6, 19, 32 respectively, wherein the determined remote storage location address is selected from the plurality of remote storage locations to minimize a distance the requested file is transmitted between each source code management system client and the determined remote storage location based on the number of requests for the file from each source code management system client.

The cited Porcar (section 5.2 Migration policies) used in rejecting the claim requirements discusses migration policies for files in a distributed system based on an extension of the space time working set policy (Porcar: page 123) The space time working set policy removes any copy based on fetching costs to storage costs, and a ratio of update communications to storage costs. Nowhere does the cited Porcar teach or suggest the claim requirement that the determined remote storage location address is selected from the plurality of remote storage locations to minimize a distance the requested file is transmitted between each source code management system client and the determined remote storage location based on the number of requests for the file from each source code management system client.

Additionally, there is no motivation provided by the Examiner to combine the teachings or suggestions of the cited Porcar, with the cited Xu and the cited Nahum to arrive at the claim requirements of claims 8, 20, 33.

For the above reasons claims 8, 21, 34 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over the art of record. Applicants have indicated appropriate fees. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0449.

The attorney/agent invites the Examiner to contact him at (310) 557-2292 if the Examiner believes such contact would advance the prosecution of the case.

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